FIG. 1
PRIOR ART

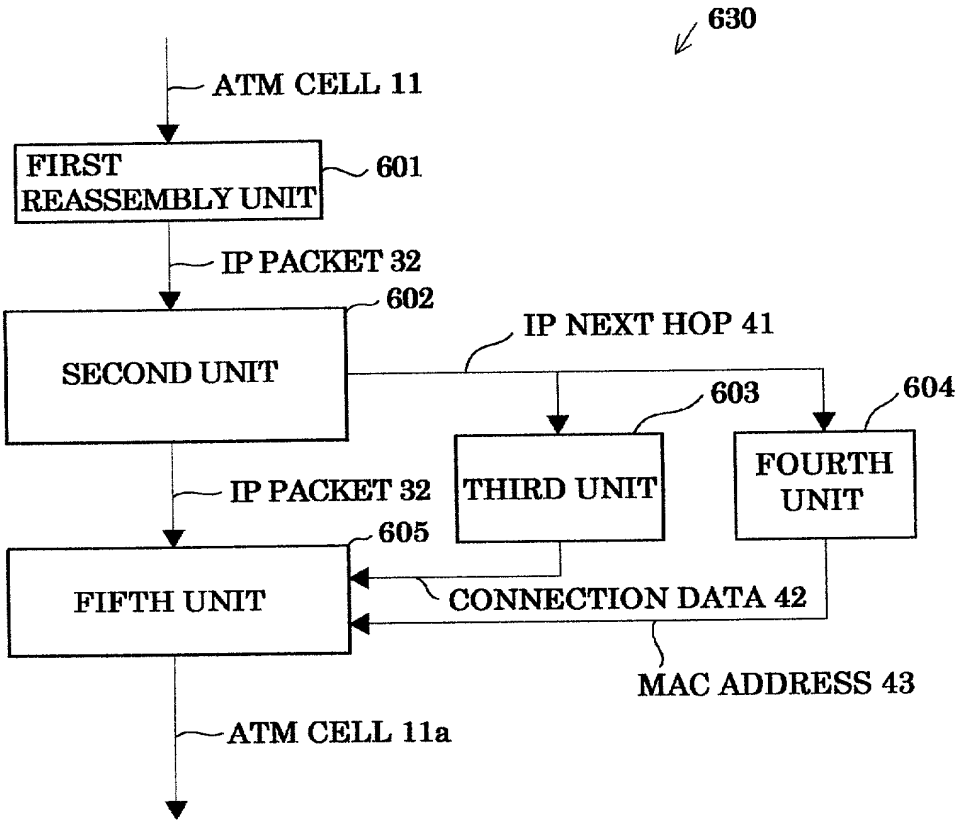


FIG. 2
PRIOR ART

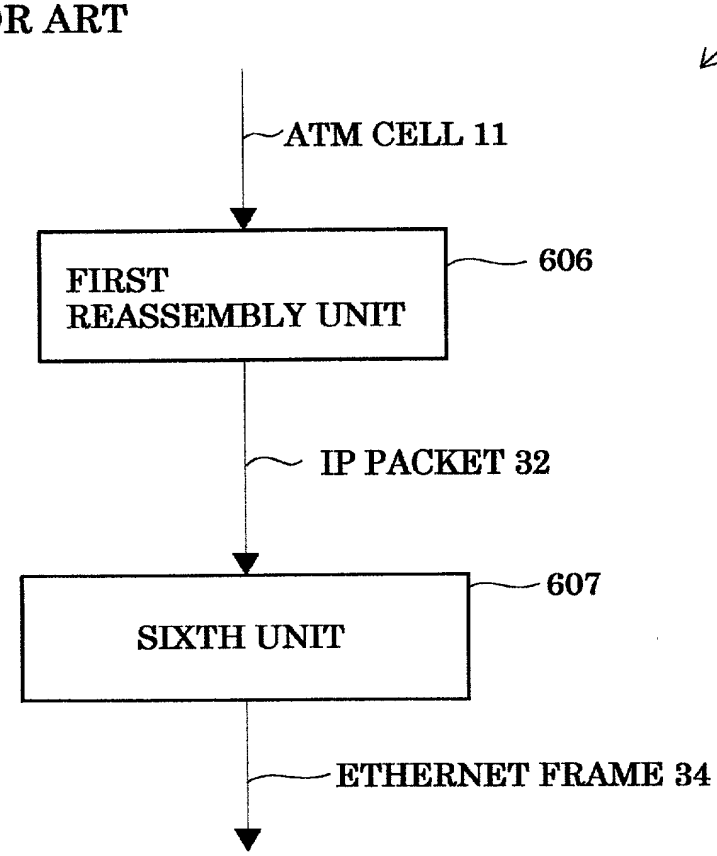


FIG. 3
PRIOR ART

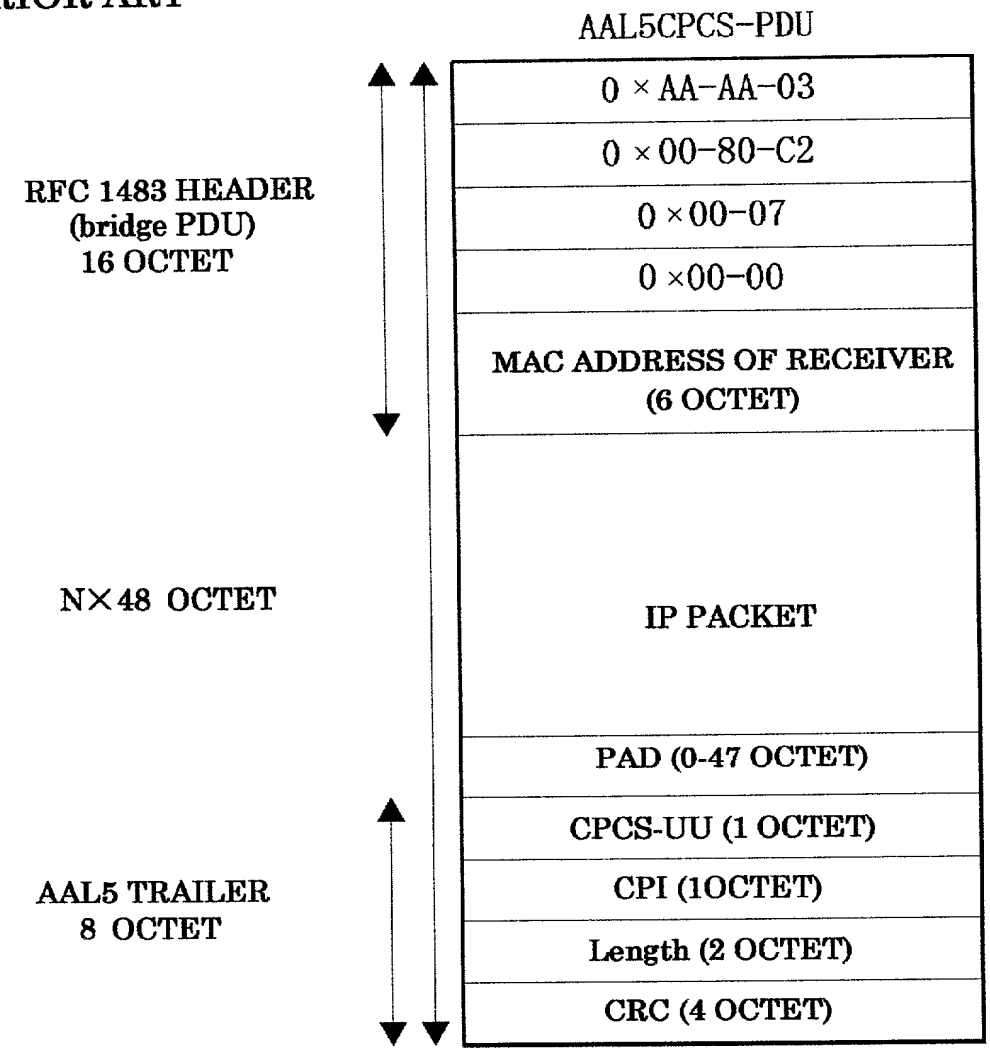


FIG. 4

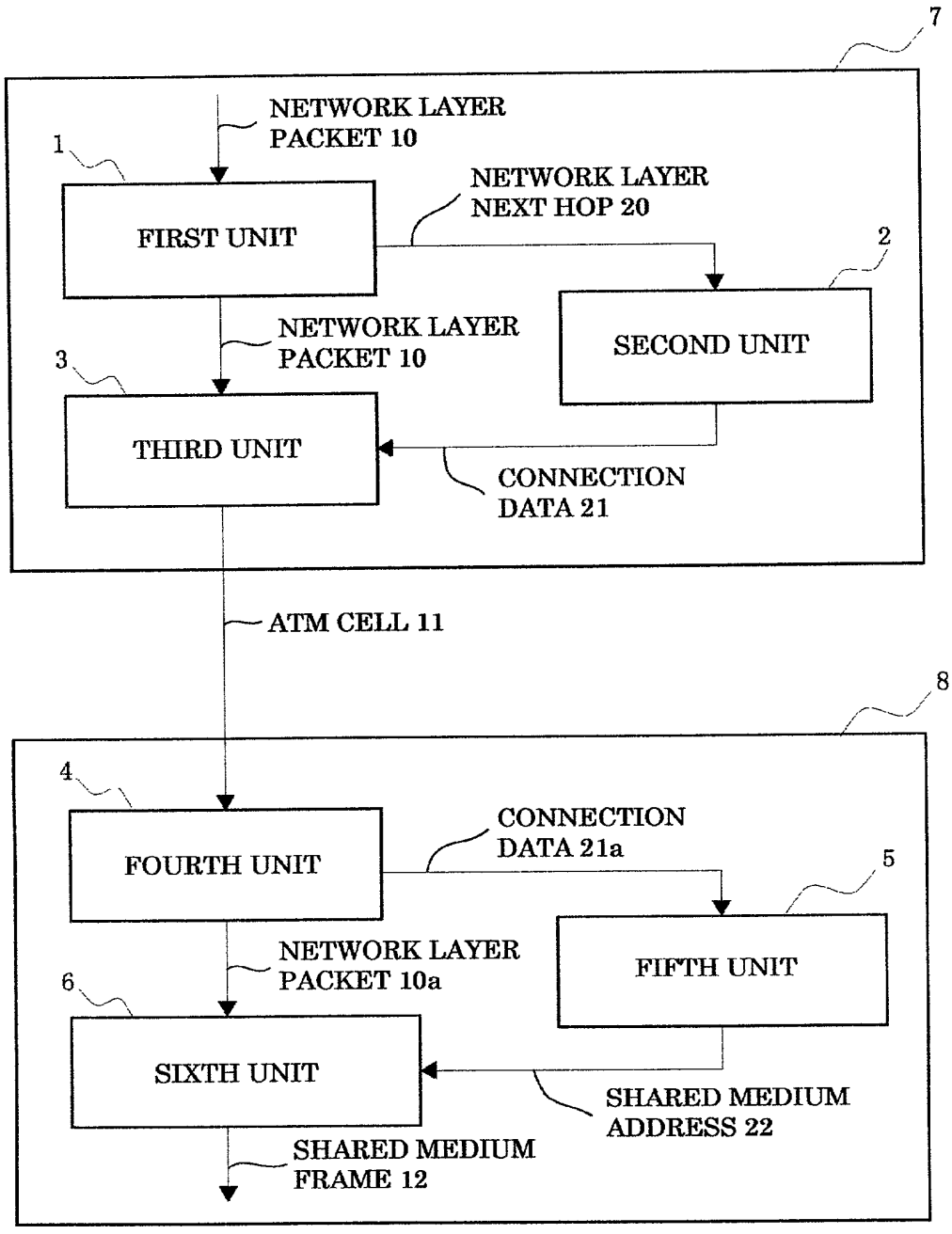

7
NETWORK LAYER PACKET 10
1
FIRST UNIT
NETWORK LAYER NEXT HOP 20
2
SECOND UNIT
NETWORK LAYER PACKET 10
3
THIRD UNIT
CONNECTION DATA 21
ATM CELL 11
8
4
FOURTH UNIT
CONNECTION DATA 21a
5
FIFTH UNIT
NETWORK LAYER PACKET 10a
6
SIXTH UNIT
SHARED MEDIUM ADDRESS 22
SHARED MEDIUM FRAME 12

FIG. 5

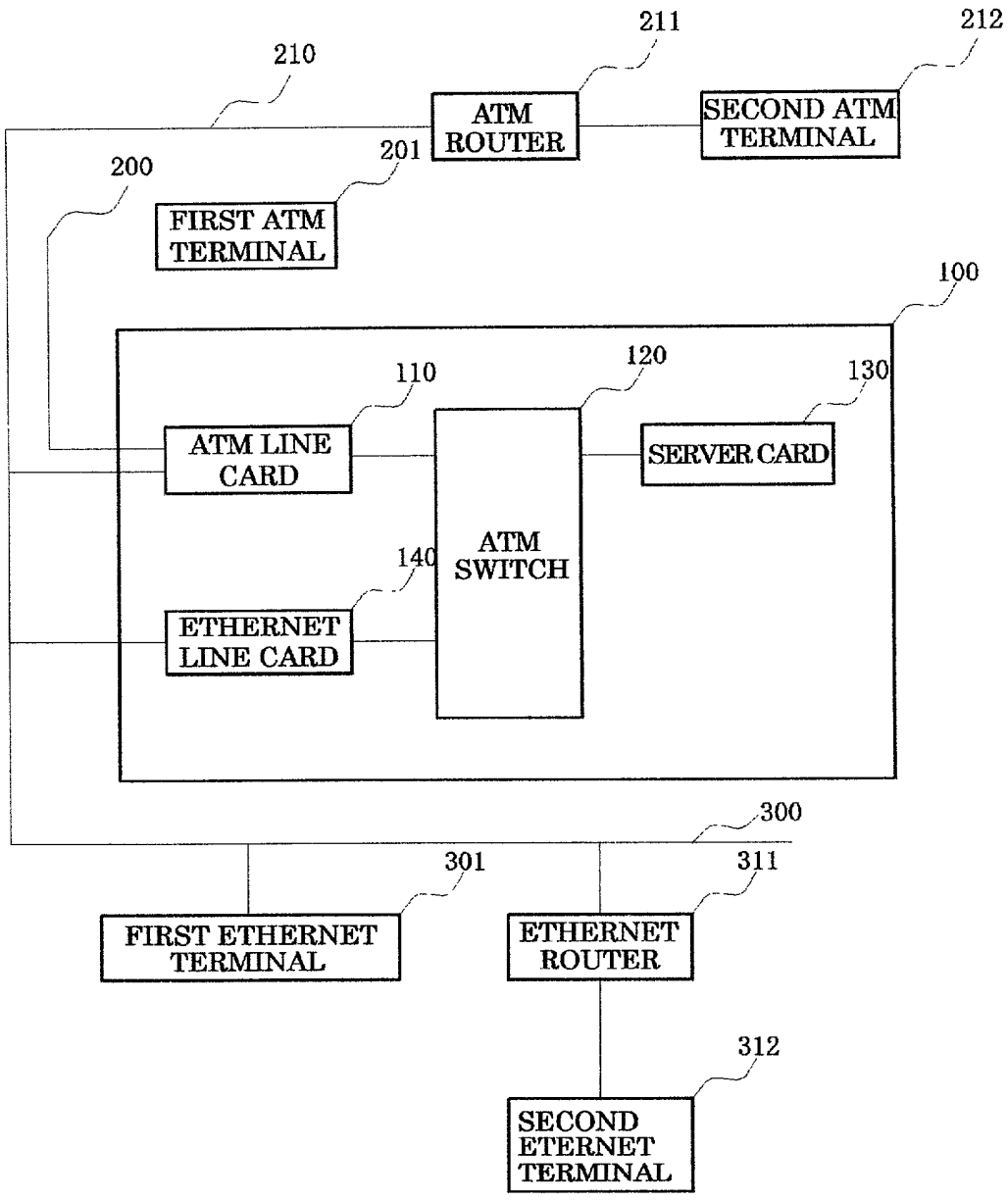

210
211
212
ATM ROUTER
SECOND ATM TERMINAL
200
201
FIRST ATM TERMINAL
100
110
120
130
ATM LINE CARD
ATM SWITCH
SERVER CARD
140
ETHERNET LINE CARD
300
301
311
FIRST ETHERNET TERMINAL
ETHERNET ROUTER
312
SECOND ETERNET TERMINAL

FIG. 6

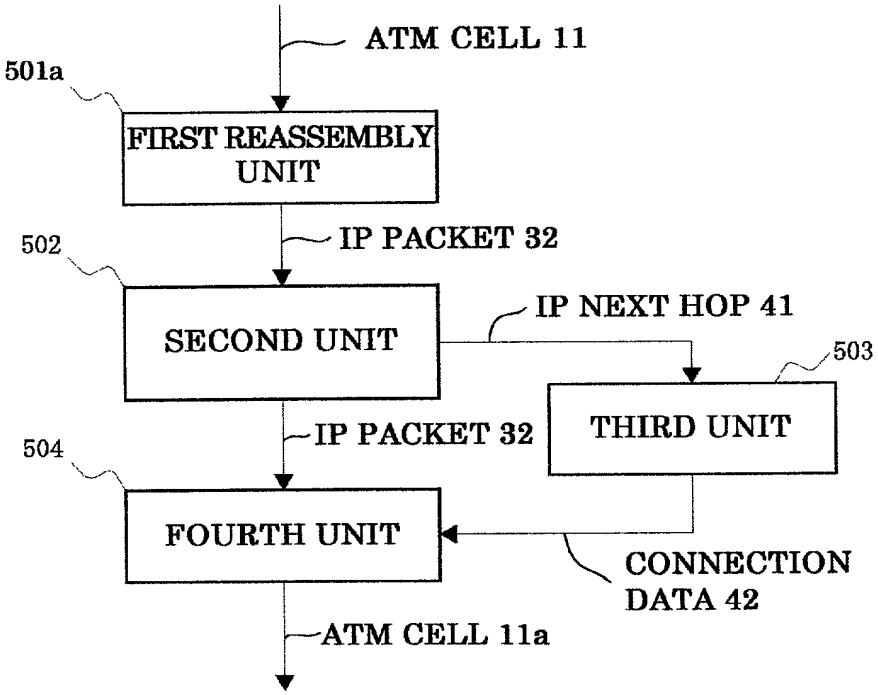

ATM CELL 11
501a
FIRST REASSEMBLY UNIT
IP PACKET 32
502
SECOND UNIT
IP NEXT HOP 41
503
THIRD UNIT
IP PACKET 32
504
FOURTH UNIT
CONNECTION DATA 42
ATM CELL 11a

FIG. 7

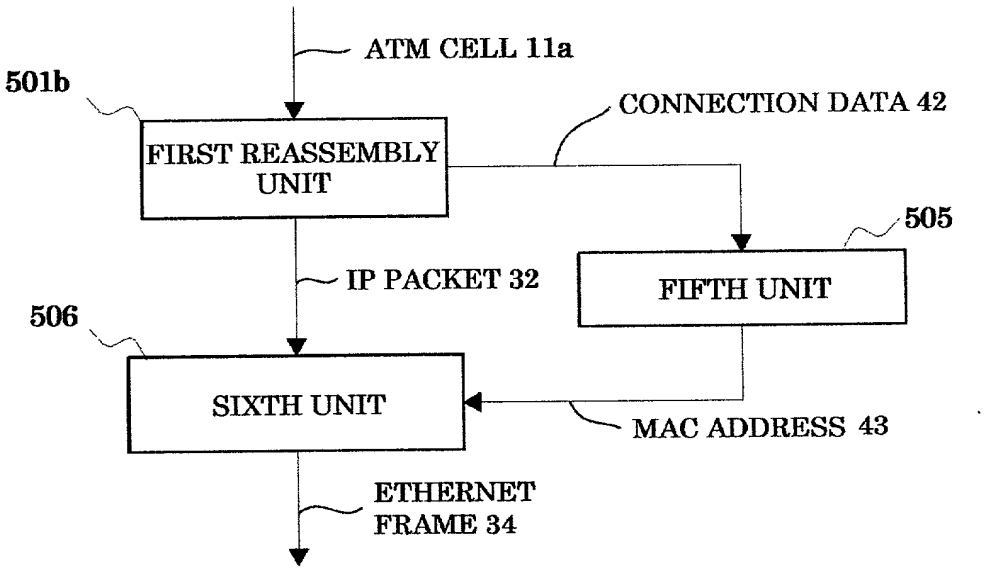

ATM CELL 11a
501b
CONNECTION DATA 42
FIRST REASSEMBLY UNIT
505
IP PACKET 32
FIFTH UNIT
506
SIXTH UNIT
MAC ADDRESS 43
ETHERNET FRAME 34

FIG. 8

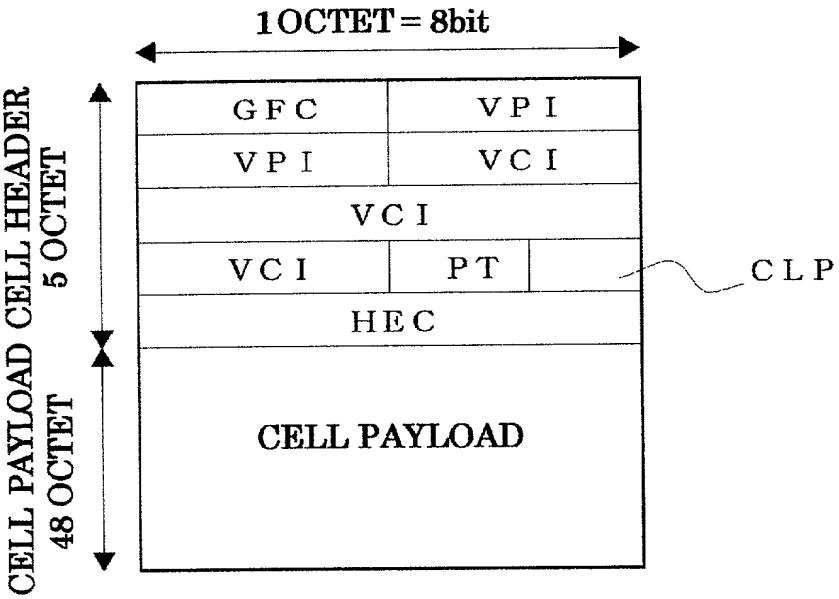

1OCTET = 8bit
GFC
VPI
VPI
VCI
VCI
VCI
PT
CLP
HEC
CELL PAYLOAD
CELL PAYLOAD CELL HEADER
5 OCTET
48 OCTET

FIG. 9

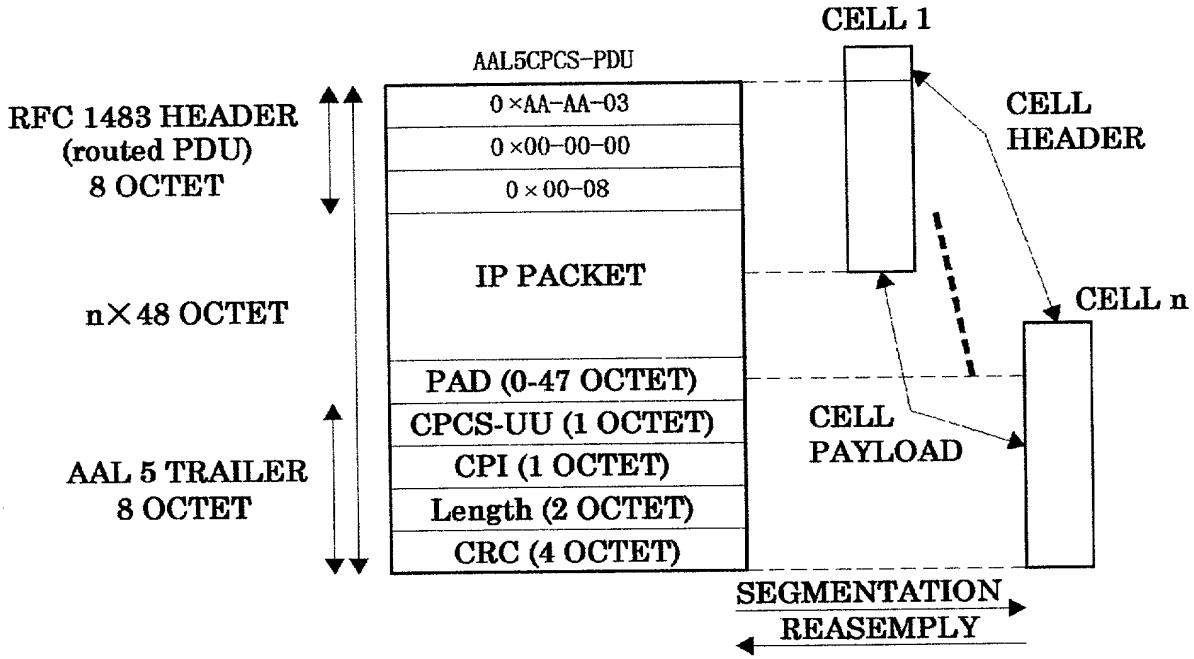

CELL 1
AAL5CPCS-PDU
RFC 1483 HEADER
(routed PDU)
8 OCTET
0×AA-AA-03
0×00-00-00
0×00-08
IP PACKET
n×48 OCTET
PAD (0-47 OCTET)
CPCS-UU (1 OCTET)
CPI (1 OCTET)
AAL 5 TRAILER
8 OCTET
Length (2 OCTET)
CRC (4 OCTET)
CELL
HEADER
CELL n
CELL
PAYLOAD
SEGMENTATION
REASEMPLY

FIG. 10

IP ADDRESS OF RECEIVER	IP NEXT HOP
IP ADDRESS OF FIRST ATM TERMINAL 201	IP ADDRESS OF FIRST ATM TERMINAL 201
IP ADDRESS OF SECOND ATM TERMINAL 212	IP ADDRESS OF ATM ROUTER 211
IP ADDRESS OF ETHERNET TERMINAL 301	IP ADDRESS OF ETHERNET TERMINAL 301
IP ADDRESS OF ETHERNET TERMINAL 312	IP ADDRESS OF ETHERNET ROUTER 311

601
41a
41b
41c
41d

FIG. 11

602

IP ADDRESS OF RECEIVER	CONNECTION DATA
IP ADDRESS OF FIRST ATM TERMINAL 201	42a
IP ADDRESS OF ATM ROUTER 211	42b
IPADDRESS OF ETHERNET TERMINAL 301	42c
IP ADDRESS OF ETHERNET ROUTER 311	42d

FIG. 12

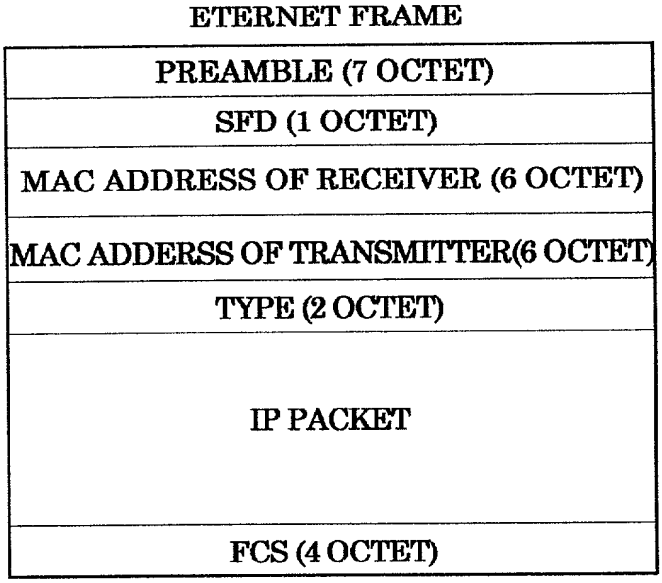
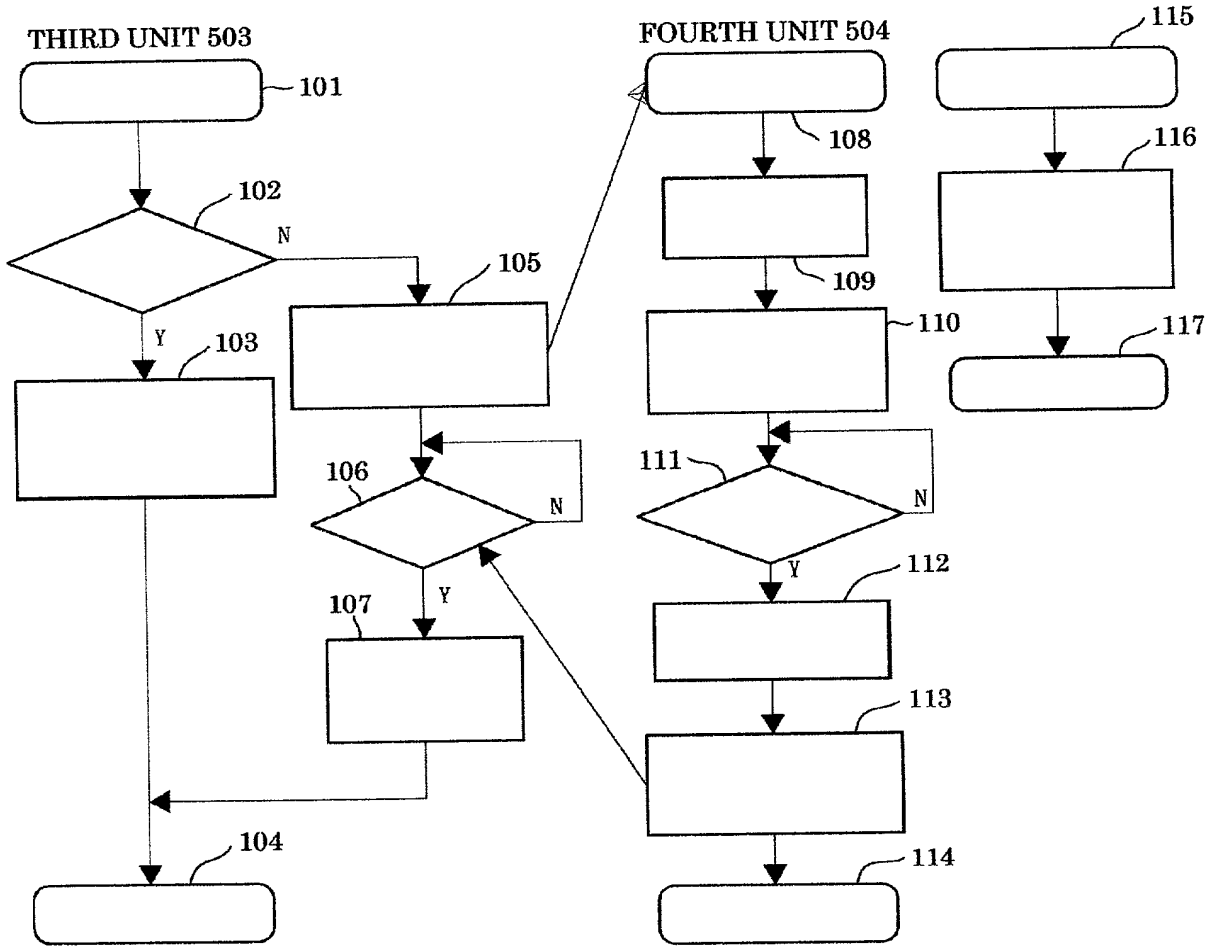

ETERNET FRAME
PREAMBLE (7 OCTET)
SFD (1 OCTET)
MAC ADDRESS OF RECEIVER (6 OCTET)
MAC ADDERSS OF TRANSMITTER(6 OCTET)
TYPE (2 OCTET)
IP PACKET
FCS (4 OCTET)

FIG. 13

CONNECTION DATA	MAC ADDRESS
42c	MAC ADDRESS OF ETERNET TERMINAL 301
42d	MAC ADDRESS OF ETHERNET ROUTER 311

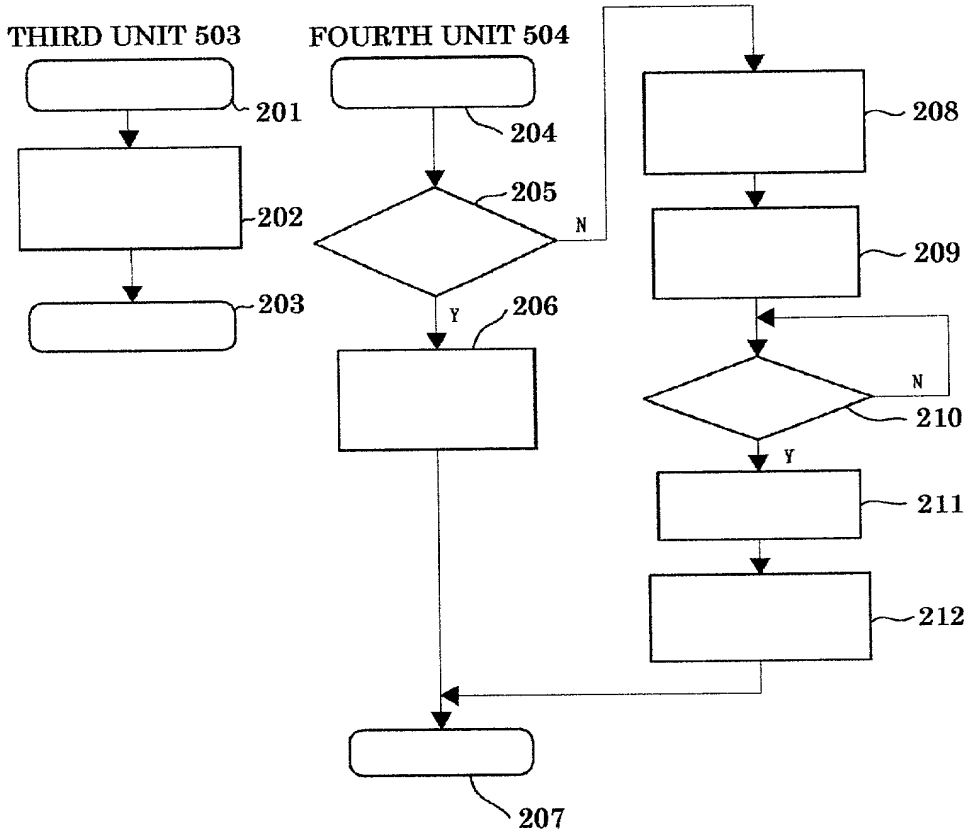
603
43c
43d

FIG. 14



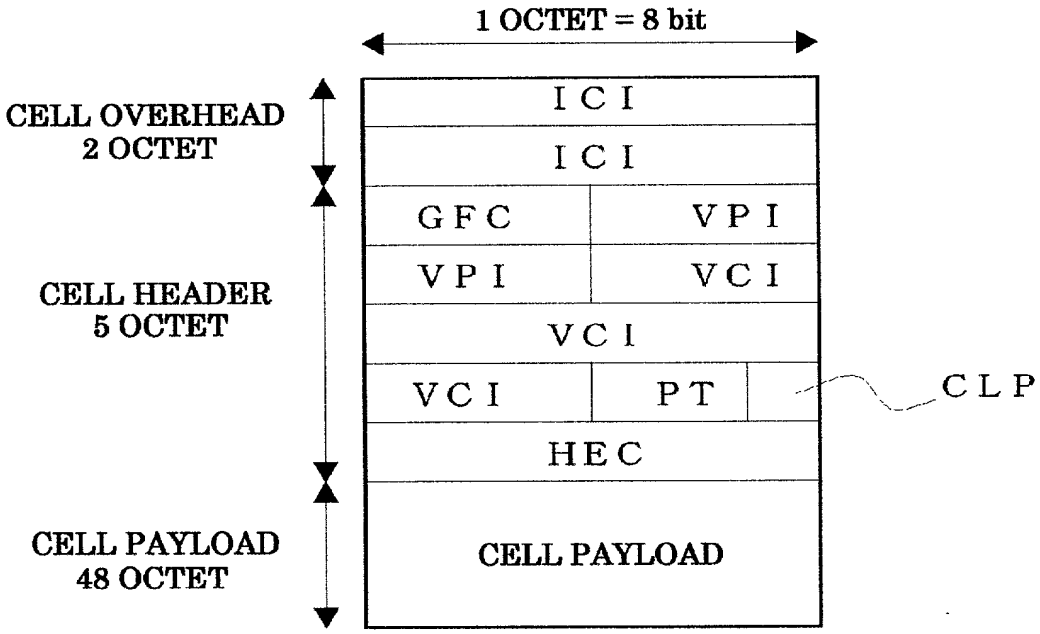
101 : RECEIVING IP PACKET 32x
102 : IS CONNECTION DATA INCLUDED ?
103 : FINDING CONNECTION DATA 42x
104 : TRANSMITTING CONNECTION DATA 42x
105 : TRANXMITTING ATM ARP PACKET
106 : IS RESPONSE RECEIVED ?
107 : STORING RELATION
108 : RECEIVING ATM ARP PACKET
109 : ASSIGNING NON-USED CONNECTION DATA 42x
110 : TRANSMITTING ARP PACKET
111 : IS RESPONSE RECEIVED ?
112 : EXTRACTING MAC ADDRESS 43x
113 : STORING RELATION
114 : TRANSMITTING MAC ADDRESS 43x
115 : RECEIVING CONNECTION DATA 42x
116 : FINDING MAC ADDRESS 43x
117 : TRANSMITTING MAC ADDRESS 43x

FIG. 15



201 : RECEIVING IP PACKET 32y
202 : PRODUCING CONNECTION DATA 42y
203 : TRANSMITTING CONNECTION DATA 42y
204 : RECEIVING CONNECTION DATA 42y
205 : IS CONNECTION DATA REGISTERED ?
206 : FINDING MAC ADDRESS 43y
207 : TRANSMITTING MAC ADDRESS 43y
208 : DEFINING IP NEXT HOP 41y
209 : TRANSMITTING ARP PACKET
210 : IS RESPONSE RECEIVED ?
211 : EXTRACTING MAC ADDRESS 43y
212 : STORING RELATION

FIG. 16


1 OCTET = 8 bit
CELL OVERHEAD
2 OCTET
CELL HEADER
5 OCTET
CELL PAYLOAD
48 OCTET
ICI
ICI
GFC
VPI
VPI
VCI
VCI
VCI
PT
CLP
HEC
CELL PAYLOAD

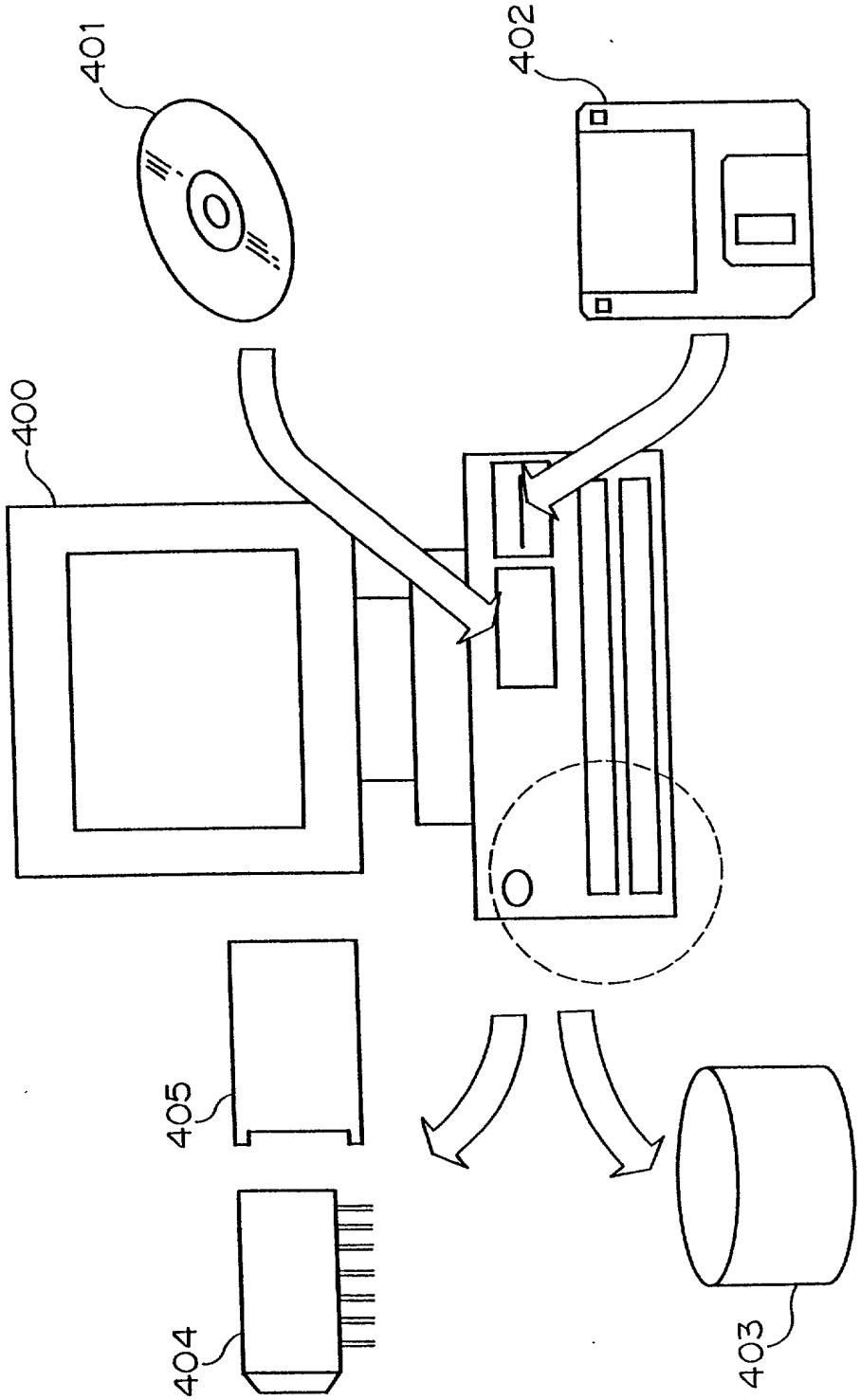


FIG. 17